Formation Flying with a Beach Ball Coronagraph (FFTB)

Completed Technology Project (2015 - 2016)

Project Introduction

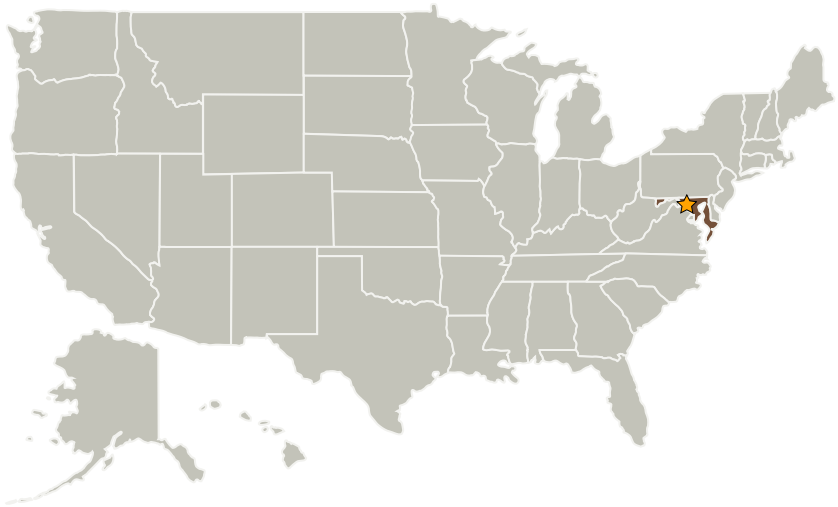
This Early-stage CIF will produce a formation-flying test bed (FFTB) of a two-spacecraft (one passive, one active) solar coronagraph, increasing this concept from TRL-2 to TRL-4 upon conclusion. The approach is to develop prototype hardware and control algorithms, and test this system at an existing GSFC Sun Simulator facility in Bldg. 21 by the end of July, 2016.

Hardware-in-the-loop testing of formation flying control software using actual, planned CubeSat hardware.

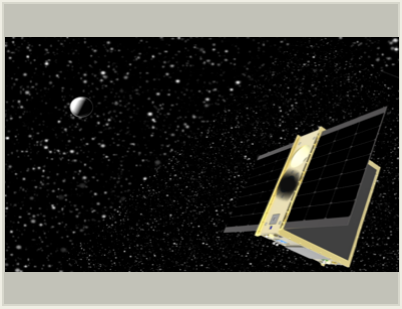
Anticipated Benefits

This will help demonstrate the formation flying capabilities for a future CubeSat or Heliophysics Explorer. The development can also be used in the future as a starting point for more complex formation flying, including both Heliophysics and Astrophysics applications.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland



Example Image of an application of the Formation Flying Testbed

Table of Contents

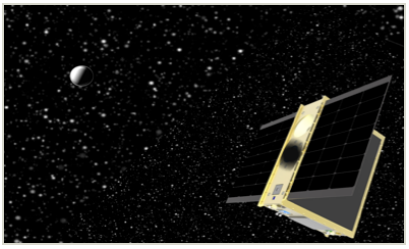
Formation Flying with a Beach Ball Coronagraph (FFTB)

Completed Technology Project (2015 - 2016)

Primary U.S. Work Locations

Maryland

Images



Beach Ball Occulter CubeSat
Example Image of an application of the Formation Flying Testbed
(https://techport.nasa.gov/image/18983)

Links

1438098953
(no url provided)

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Innovation Fund: GSFC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

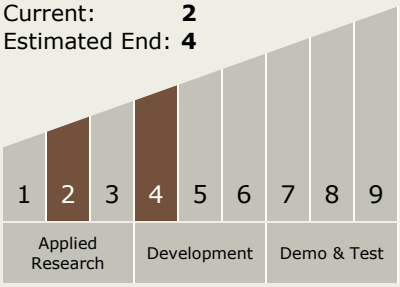
Peter M Hughes

Principal Investigator:

Phillip C Chamberlin

Technology Maturity (TRL)

Start: **2**
Current: **2**
Estimated End: **4**



Formation Flying with a Beach Ball Coronagraph (FFTB)

Completed Technology Project (2015 - 2016)

Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.3 Control Technologies
    - TX17.3.1 Onboard Maneuvering / Pointing / Stabilization / Flight Control Algorithms